

WE CLAIM:

1. A fire fighting apparatus, including one or more sprinklers, the or each sprinkler in the use position being mounted in the region of a structure so that when fluid is forced under pressure through the or each sprinkler, a radiant heat barrier of fluid droplets is formed.
2. A fire fighting apparatus in accordance with claim 1 wherein the radiant heat barrier is formed in at least one plane which is spaced a selected distance from the structure, the arrangement being such that a wind associated with a flame front forces the barrier against the structure.
3. A fire fighting apparatus in accordance with claim 1 or 2 wherein a mounting means is provided for mounting the or each sprinkler relative to the structure.
4. A fire fighting apparatus in accordance with any previous claim wherein the structure is a building such as for example a home.
5. A fire fighting apparatus in accordance with claim 3 or 4 wherein the mounting means is a bracket for mounting a base of each sprinkler to a wall of a building.
6. A fire fighting apparatus in accordance with any previous claim wherein the or each sprinkler is mounted to a wall of a building having eaves, the sprinkler mounted under the eaves so that at least one of the planes of fluid intersects with the plane of the eaves.
7. A fire fighting apparatus in accordance with any previous claim wherein at least one of the planes of fluid intersects with the plane of a wall of the structure.
8. A fire fighting apparatus in accordance with any previous claim wherein a one-dimensional or two-dimensional array of sprinkler heads are provided adjacent to a

building wall, each sprinkler spaced from adjacent sprinkler or sprinklers in order to provide an overlap of the heat-reducing barrier.

9. A fire fighting apparatus in accordance with any previous claim wherein the fluid is
5 water.

10. A fire fighting apparatus in accordance with any previous claim wherein an additive is provided to the fire fighting fluid in the form of a fire suppressant.

10 11. A sprinkler head suitable for use in forming a radiant heat barrier in the form of droplets of fire-fighting fluid in at least a single plane, the sprinkler head including at least one radial arm pivotally connected at its centre to a hub about which the or each radial arm pivots, the or each arm including one or more generally tangential extensions, the or each extension disposed at an outer end of, and in fluid communication with a respective radial 15 arm, so that fire-fighting fluid may be sprayed from the sprinkler head to form the radiant heat barrier in at least the radial plane.

12. A sprinkler head in accordance with claim 11 wherein one or more generally tangential extensions extend at an angle both away from the radial direction and away from 20 the tangential direction, so that fire-fighting fluid may be sprayed from the sprinkler head to form a radiant heat barrier in at least the radial plane and a second plane angled from both the radial plane and tangential planes.

13. A sprinkler head in accordance with claim 11 or 12 wherein a base is provided 25 adjacent or integral with the hub for mounting the sprinkler head.

14. A sprinkler head in accordance with claim 13 wherein the base is mounted on a mounting bracket.

30 15. A sprinkler head in accordance with claim 14 wherein the mounting bracket is mounted on a wall of a structure which the radiant heat barrier is intended to protect.

16. A sprinkler head in accordance with claim 15 wherein in use, the radial arms rotate in a plane generally parallel to and spaced from the wall.

5 17. A sprinkler head in accordance with any one of claims 11 to 16 wherein a set of apertures are provided along the length of the or each radial arm for the release of fire fighting fluid under pressure.

10 18. A sprinkler head in accordance with claim 17 wherein another set of apertures is provided to enable fire-fighting fluid to cool and/or treat the wall itself.

19. A sprinkler head in accordance with claim 17 wherein the set of apertures is disposed on the radial arm so as to discharge fluid tangentially from the apertures.

15 20. A sprinkler head in accordance with claim 18 or 19 wherein the other set of apertures is disposed along the radial arm so as to discharge fluid perpendicular to the or each radial arm's rotation axis.

20 21. A sprinkler head in accordance with any one of claims 11 – 20 wherein the or each sprinkler head is disposed on a wall so as to provide a radiant-heat barrier which utilises the winds associated with a fire front to force the fire-fighting fluid against the wall upon which the sprinkler head is mounted.

25 22. A sprinkler head in accordance with claim 21 wherein the wall is part of a house having eaves and roof cavity, and in use droplets are forced into the eaves and roof cavities by the winds, to cool the places where embers may also be forced.

30 23. A fire fighting apparatus suitable for use with a sprinkler or sprinkler system, the sprinkler and sprinkler system including a water supply under pressure, the water delivered to one or more selected locations via water delivery pipes having an outlet at the selected location and at least one sprinkler head in fluid communication with the outlet, the fire

fire fighting apparatus including: a fire retardant supply and a proportioning means in fluid communication with the fire retardant supply and water delivery pipes, wherein the proportioning means delivers the fire retardant in a selected and controlled concentration to the water supply in the water delivery pipes.

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24. A fire fighting apparatus in accordance with claim 23 wherein the proportioning means is in fluid communication with the water delivery pipes at a connection upstream from the sprinkler head.

10 25. A fire fighting apparatus in accordance with claim 24 wherein the connection is in a range of 0.1m to 500m upstream from the sprinkler head.

26. A fire fighting apparatus in accordance with claim 25 wherein the connection is disposed 1m upstream from the sprinkler head.

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27. A fire fighting apparatus in accordance with any one of claims 23 to 26 wherein the concentration of the fire suppressant may be selected from the range of 100:1 to 3000:1.

28. A fire fighting apparatus in accordance with claim 27 wherein the concentration of
20 fire suppressant metered by the proportioning means is 500:1.

29. A fire fighting apparatus in accordance with any one of claims 23 – 28 wherein the fire suppressant has an active ingredient of Acrylamide Copolymer Emulsion.

25 30. A fire fighting apparatus in accordance with any one of claims 23 – 29 wherein the sprinkler head is of the kind used in internal automatic sprinkler systems, such as those found in multi-storey buildings.

31. A fire fighting apparatus in accordance with any one of claims 23 – 30 wherein the
30 sprinkler head is in accordance with any one of claims 11 – 22.

- 15 -

32. A fire fighting apparatus in accordance with any one of claims 1 – 10 wherein the sprinkler head is in accordance with any one of claims 11 – 22.
33. A fire fighting apparatus in accordance with any one of claims 1 – 10 including a proportioning means in accordance with any one of claims 23 – 30.
34. A fire fighting apparatus substantially as hereinbefore described and shown in the drawings.
- 10 35. A sprinkler head substantially as hereinbefore described and shown in the drawings.